

## **REMARKS**

Claims 1-20 are pending in the present application.

This Amendment is in response to the Final Office Action mailed January 7, 2011. In the Final Office Action, the Examiner rejected claims 12-16 under 35 U.S.C. §101; claims 1-4, 6-7, 12-15, and 18-20 under 35 U.S.C. §102(b); and claims 8-11, 16, and 17 under 35 U.S.C. §103(a). Applicant amended claims 1, 12 and 18. Reconsideration in light of the amendments and remarks made herein is respectfully requested.

### ***Rejection Under 35 U.S.C. § 101***

In the Office Action, the Examiner rejected claims 12-16 under 35 U.S.C. §101.

Regarding claims 12-16, the Examiner maintains that there are no limitations that preclude the system as purely software such that the claims are allegedly directed to non-statutory subject matter. Applicant respectfully disagrees, but in the interest of advancing the prosecution of the present invention, independent claim 12 has been amended to recite “A system being implemented within a computing device comprising: a pattern insertion hardware subsystem...; and a signal processing hardware subsystem...” to overcome the Examiner’s rejection.

Accordingly, Applicant respectfully requests that the rejection under §101 be withdrawn.

### ***Rejection Under 35 U.S.C. § 102***

In the Office Action, the Examiner rejected claims 1-4, 6-7, 12-15, and 18-20 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,775,240 issued to Zhang et al. (“Zhang”). Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a *prima facie* case of anticipation.

Zhang does not disclose, either expressly or inherently, at least, (1) “a first signal including an original data stream and a predetermined pattern” and “a second signal including the original data stream and the predetermined pattern,” and (2) “the predetermined pattern is substantially sinusoidal and comprises a single predetermined period,” as delineated in independent claims 1, 12, and 18.

(i) Test signals in Zhang do not include an original data stream and a predetermined pattern

Zhang merely discloses a test signal having a repeating pattern of known frequencies, amplitudes, and/or other characteristics being transmitted. In Figure 4, trace 410 represents the received reference-path signal, which is equivalent to the transmitted signal and trace 420 represents the received test-path signal. Ideally, the received test-path signal would be identical to the received reference-path except for the delay (Zhang, col. 8, lines 46-63; Figure 4).

In the Office Action, the Examiner alleges that the received test-path signal 410 and the received test-path signal 420 correspond to the “first signal” and the “second signal,” respectively (Office Action, pages 4, 5, and 7). Applicant respectfully disagrees and submits that the specification recites, *inter alia*, “As shown in FIG. 2..., a predetermined pattern 117 is inserted in signals 130a and 130b... to form a pattern-inserted data stream 130. Signals 130a and 130b thus each comprise the original data stream 121 and the predetermined pattern 117” (See Specification, par. [0018]; Figure 2, for further details). In contrast, claims 1, 12 and 18 recite “a first signal including an original data stream and a predetermined pattern” and “a second signal including the original data stream and the predetermined pattern” (claims 1 and 18) and “the inserted first signal including an original data stream and the predetermined pattern and the inserted second signal include the original data stream and the predetermined pattern” (claim 12).

In Zhang, the test signal is merely injected into or received from the handset circuit (Zhang, col. 6, lines 31-35). This test signal is then received as trace 410 (the received reference-path signal) via the reference path and trace 420 (the received test-path signal) via the test path (Zhang, col. 8, lines 46-56). Accordingly, the traces 410 and 420 is merely equivalent to test signal being transmitted (Zhang, col. 8, lines 50-55). Therefore, even assuming that the repeating pattern in the test signal corresponds to “the predetermined pattern,” the traces 410 and 420 cannot correspond to the first and second signals (claims 1 and 18) or the inserted first and second signal (claim 12) because the traces 410 and 420 do not include “an original data stream” as delineated in the claims.

In the Response to Arguments Section, the Examiner alleges that the test signal being transmitted includes both an original data stream and a predetermined pattern because Zhang

states that the test signals are “appropriate test signals” (Zhang, col. 3, lines 12-16) (Final Office Action, pages 2-3).

Applicant submits that the Examiner misconstrues the teachings of Zhang. The “appropriate test signals” as described in reference to Figure 4 state that the test signals are merely a repeating pattern of known frequencies and amplitudes and/or other characteristics (Zhang, col. 8, lines 46-49; Figure 4). Accordingly, it is a leap of logic to conclude that the test signal includes an original data stream as well as a predetermined pattern, as delineated in claims 1, 12, and 18, merely because Zhang states that the test signals are “appropriate test signals.”

(ii) Test signal in Zhang does not comprise a single predetermined period

Additionally, Zhang illustrates, in Figure 4, a suitable test signal having a repeating pattern of known frequencies, amplitudes and/or other characteristics (Zhang, col. 8, lines 46-56; Figure 4). Contrary to that alleged by the Examiner, the repeating pattern in the test signal cannot correspond to the “predetermined pattern” because the repeating pattern in Figure 4 does is not “substantially sinusoidal and compris[e] a single predetermined period.” As illustrated in Figure 3 of the Specification, as an example, the waveform of the predetermined pattern 117 follows the exemplary Equation 1:  $y = ((100 - x/\Pi)/100)*\cos(x)$  (see Specification, par. [0020], Figure 3, for further details). Accordingly, the predetermined pattern 117 comprises a single predetermined period. Since the repeating pattern in the test signal in Zhang includes a plurality of known elements (i.e., 424a, 424b, 424c...) having a pattern of known frequencies, there is no teaching of the repeating pattern including a “single predetermined period.”

In the Response to Arguments Section, the Examiner states that the test signal has “various frequencies” and frequency is nothing more than the inverse of a signal’s period. The Examiner concludes that the designation of a test signal at a particular frequency constitutes a predetermined period (Final Office Action, page 3). Applicant respectfully disagrees and submits that the test signal as described in Zhang, Figure 4, is “a test signal having a repeating pattern of known frequencies,” and not a single particular frequency. Accordingly, since the test signal includes a plurality of frequencies, the test signal does not comprise a “single predetermined period” as recited in amended claims 1, 12, and 18.

Moreover, Zhang merely discloses that the sequence of calculations used to determine cross correlation of the received test signal and received reference signal is further used to

determine bearer delay. The measurement of the bearer delay is performed by (1) selecting a period of received reference signal; (2) finding the period of the received test signal that most closely matches the selected period of the reference signal by repetitively shifting one of the signals a sample at a time and calculating the correlation coefficient each time, to find the total shift resulting in the maximum correlation and (3) calculating as the delay the time difference... between reception of the selected reference signal period and the matched test signal period (Zhang, col. 7, line 66 to col. 8, line 16). In the Office Action, the Examiner alleges that the selected period of the received reference signal corresponds to “a predetermined period” (Office Action, page 5). Applicant respectfully disagrees and submits that, in the present invention, the predetermined period refers to the period of the mathematical equation representing the predetermined pattern whereas the period being selected from the received reference signal in Zhang is merely any chosen segment of the signal. Accordingly, the selected period from the received reference signal cannot correspond to “a predetermined period” being included in “the predetermined pattern,” as delineated in claims 1, 12, and 18.

To anticipate a claim, the reference must teach every element of a claim. “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Vergegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the...claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). The Examiner bears the burden of presenting at least a *prima facie* case of anticipation. *In re King*, 801 F.2d 1324, 1327, 231 USPQ 136, 138-139 (Fed. Cir. 1986); *In re Wilder*, 429 F.2d 447, 450, 166 USPQ 545, 548 (CCPA 1970). Only if that burden is met, does the burden of going forward shift to the applicant. *In re King*, 801 F.2d at 1327, 231 USPQ at 138-139; *In re Wilder*, 429 F.2d at 450, 166 USPQ at 548. Once a *prima facie* case is established and rebuttal evidence is submitted, the ultimate question becomes whether, based on the totality of the record, the Examiner carried his burden of proof. See *In re Oetiker*, 977 F.2d 1443, 1445. 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If the Examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Since the

Examiner failed to show that Zhang teaches or discloses any one of the above elements, the rejection under 35 U.S.C. §102 is improper.

Therefore, Applicant believes that independent claims 1, 12, and 18 and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §102(b) be withdrawn.

### ***Rejection Under 35 U.S.C. § 103***

In the Office Action, the Examiner rejected claims 8-11, 16, and 17 under 35 U.S.C. §103(a) as being unpatentable over Zhang in view of U.S. Publication No. 2006/0072628 issued to Liu et al. ("Liu"). Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a *prima facie* case of obviousness.

To establish a *prima facie* case of obviousness, certain basic criteria must be met. For instance, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. MPEP §2143. Applicant respectfully submits that the combined teachings do not address each and every limitation, and thus no *prima facie* case of obviousness has been established.

Furthermore, the Supreme Court in Graham v. John Deere, 383 U.S. 1, 148 USPQ 459 (1966), stated: "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." MPEP 2141. In KSR International Co. vs. Teleflex, Inc., 127 S.Ct. 1727 (2007) (Kennedy, J.), the Court explained that "[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order *to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.*" *Emphasis Added*. The Court further required that an explicit analysis for this reason must be made. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to

support the legal conclusion of obviousness.” KSR, 127 S.Ct. at 1741, quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006).

In the instant case, Applicant respectfully submits that the combined teachings of the cited prior art references do not teach or suggest all of the claim limitations. Furthermore, Applicant respectfully submits that there are significant differences between the cited references and the claimed invention and thus, there is no apparent reason to combine the known elements in the manner as claimed. No *prima facie* case of obviousness has been established.

Applicant further submits that a *prima facie* case of obviousness has not been established for dependent claims 8-11, 16, and 17. However, based on the dependency of claims 8-11, 16, and 17 on independent claims 1, 12, and 18, respectively, which are believed to be in condition for allowance, Applicant respectfully submits that claims 8-11, 16, and 17 are believed to be allowable for at least the reasons set forth above.

Therefore, Applicant believes that claims 8-11, 16, and 17 are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §103(a) be withdrawn.

### ***Conclusion***

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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